

What is claimed is;

1. A microscope system comprising:

a stage on which a specimen is placed;

an image forming optical system that forms an image of
5 the specimen placed on the stage;

an image-capturing device that captures the image of
the specimen formed by the image forming optical system;

a focused position detection device that detects a
focused position for the specimen based upon the specimen image
10 captured by the image-capturing device; and

a focused position storage device that stores in memory
the focused position detected by the focused position detection
device, wherein:

the focused position detection device sets a search range
15 centered around the focused position stored in memory at the
focused position storage device and detects the focused
position anew by causing the stage and the image forming
optical system to move relative to each other over the search
range thus set each time a focusing operation is executed.

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2. A microscope system according to claim 1, further
comprising:

a reset operation detection device that detects a reset
operation for resetting memory contents at the focused position

25 storage device, wherein:

the focused position detection device sets the search range based upon the same focused position stored in memory at the focused position storage device every time a focusing operation is executed until the reset operation is detected
5 by the reset operation detection device.

3. A microscope system according to claim 2, wherein:
the reset operation detection device detects a removal of the specimen from the stage as the reset operation.

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4. A microscope system according to claim 2, further comprising:

a housing in which at least the stage, the image forming optical system and the image-capturing device are housed,
15 wherein:

the stage includes a specimen platform on which the specimen is placed and a transfer unit that inserts the specimen platform into the housing and ejects the specimen platform from the housing via an opening formed at the housing; and
20 the reset operation detection device detects an eject operation through which the specimen platform is ejected from the housing as the reset operation.

5. A microscope system according to claim 1, wherein:
25 if the focused position is not stored in memory at the

focused position storage device when a focusing operation is executed, the focused position detection device detects the focused position over an initial search range set wider than the search range.

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6. A microscope system according to claim 5, further comprising:

an initial position storage device that stores in memory an initial position of the stage which is obtained when the specimen is brought to be placed on the stage, wherein:

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the focused position detection device moves the stage to the initial position stored in memory at the initial position storage device if the focused position cannot be detected over the initial search range.

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7. A microscope system according to claim 1, wherein:

if the focused position cannot be detected anew over the search range that has been set, the focused position detection device moves the stage to the focused position having been stored in memory at the focused position storage device.

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8. A microscope system according to claim 2, wherein:

the focused position detection device erases the memory contents at the focused position storage device once the reset operation is detected by the reset operation detection device.

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9. A microscope system according to claim 1, further comprising:

a slide glass detection device that detects a replacement
5 operation for replacing a slide glass used to hold the specimen;

an identification information detection device that
detects identification information inherent to the slide glass
and provided at the slide glass;

an identification information storage device that
10 stores in memory the identification information detected by
the identification information detection device; and

a control device that (1) stores the identification
information on the slide glass detected by the identification
information detection device and the focused position detected
15 by the focused position detection device in correspondence
to each other into the identification information storage
device if a removal operation for removing the slide glass
is detected based upon a detection signal provided by the slide
glass detection device and (2) reads out the focused position
20 corresponding to the identification information on the slide
glass detected by the identification information detection
device from the identification information storage device and
stores the focused position thus read out into the focused
position storage device if a mounting operation for mounting
25 the slide glass is detected based upon the detection signal

provided by the slide glass detection device.

10. A microscope system according to claim 1, further comprising:

5 a contrast detection device that detects a contrast value of the image captured by the image-capturing device, wherein:
the focused position detection device detects the focused position for the specimen based upon the contrast value detected by the contrast detection device.

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11. An autofocus device comprising:

a connection unit that connects with an image-capturing device, the image-capturing device capturing an image of a specimen placed on a stage in a microscope, which is formed
15 via an image-forming optical system, and determining a contrast value of the captured image;

a focused position detection device that detects a focused position for the specimen based upon the contrast value obtained via the connection unit;

20 a storage device that stores in memory the focused position detected by the focused position detection device;
and

a reset operation detection device that detects a reset operation for resetting memory contents at the storage device,

25 wherein:

the focused position detection device (1) sets a search range centered around the focused position stored in memory at the storage unit and outputs a command for detecting the focused position anew by moving the stage along an optical axis of the image forming optical system over the search range thus set and (2) erases the stored contents at the storage device once the reset operation is detected by the reset operation detection device.

10 12. A microscope system comprising:

a focused position detection device that detects a focused position for a specimen;

a focused position storage device that stores in memory information related to the focused position detected by the focused position detection device;

a search device that determines a search range based upon the focused position information stored in memory at the focused position storage device and controls the focused position detection device so as to perform a focused position detection operation within the search range;

a reset device that resets the focused position information stored in memory at the focused position storage device; and

a control device that holds the focused position information in the focused position storage device once the

focused position information is stored into the focused position storage device until the reset device is engaged in operation.

5 13. A microscope system according to claim 12, further comprising:

a slide glass detection device that detects a replacement operation for replacing a slide glass used to hold the specimen;

an identification information detection device that
10 detects identification information inherent to the slide glass and provided at the slide glass; and

an identification information storage device that stores in memory the identification information detected by the identification information detection device, wherein:

15 if the slide glass detection device detects a removal operation for removing the slide glass, (1) the control device stores the identification information on the slide glass detected by the identification information detection device and the focused position information detected by the focused
20 position detection device in correspondence to each other into the identification information storage device and (2) the reset device resets the focused position information in the focused position storage device; and

if the slide glass detection device detects a mounting
25 operation for mounting the slide glass, the control device

reads out the focused position information corresponding to the identification information on the slide glass detected by the identification information detection device from the identification information storage device and stores the
5 focused position information thus read out into the focused position storage device.

14. An autofocus control method adopted in a microscope comprising:

10 capturing an image of a specimen placed on a slide glass mounted on a stage;

detecting a focused position for the specimen relative to an objective lens by using the captured image of the specimen;

storing the focused position into memory at a storage
15 device; and

detecting the focused position anew by moving the stage and the objective lens relative to each other within a search range centered around the focused position stored in the storage device when an instruction for a focusing operation
20 start is issued.

15. An autofocus control method adopted in a microscope according to claim 14, wherein:

information indicating the focused position stored in
25 the storage device is erased once the slide glass is moved

off an optical axis of the objective lens.